MEDICINE IN INDIA*

SIR WILLIAM J. WANLESS, K.B.E., K.I.H., M.D., F.A.C.S.
Glendale, California
Ex Physician in Charge
American Presbyterian Hospital
Miraj, India, Retired

I appreciate the honor conferred upon me as expressed in the invitation of your secretary to address this section of the Academy on the subject of Medicine in India.

I value the privilege accorded in-as-much as it evinces a sympathetic interest on your part in the Medical Service of a nation that amid political upheaval and communal conflict is striving to keep pace with professional progress of the West where less distracting conditions prevail.

The limitations of this paper will not permit a scientific discussion of diseases peculiar to India, other than the mention of some of the conditions which underlie the prevalence of disease, having unusually high incidence and devastating mortality.

As a prelude to the general subject of medicine in India, it may not be out of place if I present a summary of the medical forces at present operating in that vast and populous country. First of all then as to *Organized Medical Relief* among India's 320 millions of the civil population (to be concise 318,942,480 according to the last (1921) census), the following medical services obtain in India.

THE INDIAN MEDICAL SERVICE.

This constitutes the principal government department of medical relief and public health. The I. M. S. is made up of commissioned British medical officers appointed through the India Office in London. The service is supplemented by a large corps of subordinate medical officers recruited and appointed in India, who are graduates of the Indian medical colleges and medical schools. This entire

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service is eligible for military duty in time of war. The total number employed in this service by the Government is 302.

The officers of the India Medical Service direct the medical administration of the Provinces, provide teachers for the medical colleges and serve as civil surgeons in charge of the more important districts in each Province. The service has produced a number of devoted and brilliant investigators of international reputation. In the research department a staff of seventeen British workers is maintained with an ample corps of associated assistants engaged in research work. During 1927-28 some sixty-six important investigations were carried out; and the Government appropriated $240,000 for the purposes of this department. British medical officers are gradually being supplanted by Indians in anticipation of prospective self-government.

The Royal Army Medical Corps, R. A. M. C.

This service is concerned only with the British Army, foreign and native, numbering 55,000 British and 133,000 Indian soldiers.

Women's Medical Service

This service is for women in India, is of recent origin and is conducted under the National Association for supplying medical aid by women to the women of India (formerly the Countess of Dufferin Fund). This organization, controlled by the government, numbers 22 British trained female medical officers, 22 Indians or Anglo-Indians, trained, for the most part, in India. There is a very large percentage of the women of India that can be cared for in sickness only by women doctors particularly in the central, northern and eastern provinces, where the purdah system is relatively most rigid and mortality statistics are highest among women for the same reason. Infant mortality is appalling and maternal mortality higher than in

most other countries especially in the great cities. According to health report for 1924 of the Public Health Commissioner with the Government of India, the maternal death rates in confinement cases varied from 1.0 per 1000 in Rangoon, Burmah, to 48 per 1000 in Parorrn. In the Calcutta Health Officer's report the rate given was 18.0 per 1000. In Bengal from 1919 to 1925 the rate given was 12.2 and in Bombay for 1924 it was 16.7 per 1000.

These figures for reasons given elsewhere are not very reliable.

Medical Missions

In Medical Mission Service there are 270 foreign and 212 qualified Indian physicians on the combined staff of mission hospitals throughout India. To these might be added a total nursing force of 369 foreign nurses and 516 trained Indian nurses. Medical Missions are conducted under the auspices of the various evangelical churches carrying on Mission work in India. This service is supported by the contributions of foreign church organizations, by the local gifts on the field and by government grants-in-aid. The foreign workers' salaries are contributed by home boards or missionary societies having missions in India.

To the foregoing organized Medical Service should be added the private practitioners, national and foreign, residing mainly in the large cities and towns, and an indefinite number of qualified and unregistered practitioners. There are registration laws, enacted in 1912, but in-asmuch as there is no law in India *compelling* the registration of physicians in order to practice, the precise number of qualified practitioners is not ascertainable, since many practicing physicians do not register.

Mention might be made also of a considerable number of private practitioners of the Unani and Ayur vedic systems with a few recognized schools in Bombay, Calcutta, Madras, and in some of the other large cities.

There is an innumerable company of the Hakims and Vaids whose training is mainly a matter of heredity. These men possess no knowledge of the foundation sciences of medical practice, *i. e.,* chemistry, physiology, anatomy, etc. Their knowledge consists of an acquaintance with the therapeutic action of some of the indiginous remedies, fruits, herbs, leaves, roots, and on occasion, common English medicines such as soda bicarbonate, potassium iodide, belladonna, cannabis indica, mercury, arsenic, nux vomica, opium, which are available on purchase in the bazaars of the cities and towns over the country.

Medical Institutions

The hospitals, dispensaries, and medical schools—these are enumerated (census 1921) according to (a) those in *British India,* containing (1) those in the nine Governor's Provinces or Presidencies and three other outlying Provinces; (2) the *Indian States* under Indian rulers. The former contains an area of 1.094,300 square miles, 61 per cent of the whole area and have a population of 247,942,-293, or 77 per cent of the whole. The Indian States represent an area of 711,032 square miles or 39 per cent of the whole, and a population of 71,939,187 or 23 per cent of the whole population of India. To provide for this great mass of humanity the qualified doctors are distributed as follows:

Doctors

For each 100,000 persons in British India the distribution of doctors varies according to the location and accessibility of the province. In the Governor's Provinces or Presidencies the ratio varies from one doctor to 4761 as in the Bombay Presidency, to one in 35,714 in the Central Provinces where the square mile area to the population is greater.

Medical Institutions and Hospital Beds

For each 100,000 of the population in the nine Governor's Provinces there are 2.6 institutions as a maximum,

in Bombay Presidency, to .5 institutions for every 100,000 in Assam. The Punjab has one medical institution to every 100,000 of the population. The three outlying Provinces, owing to their larger area and comparatively sparse population, have a maximum of 11.25 medical institutions to each 100,000 of the population.

Native States

In the Indian States statistics are less completely kept than in British territory. Of medical institutions in these states there is a total of 736 hospitals and dispensaries, or 2.29 medical institutions to each 100,000 of the population in the seven principal Indian states for which statistics are available and representing 32,079,919 or about 30 per cent of the total native state population in these states. For the same institutions on a basis of fifty beds to each institutions there could be 11.4 beds to every 100,000 of the population.

Throughout the whole Indian Empire there is approximately one qualified doctor to 25,000. In the large cities the proportion is very much higher. For example, in 1927 in the city of Madras with a population of 526,000 there were 629 doctors practicing, or one to every 840 persons; at the same time in the Madras Presidency with a population of 42 millions there were 2389 qualified doctors or one doctor to 17,580 persons. This is probably a fair average for other Presidency cities.

Reasons for Overcrowding of Physicians in the Cities as Compared With the Paucity of Doctors in the Rural Areas.

In a word, it is poverty and consequent low order of social life, in the village areas. The educated doctor without an altruistic purpose finds life in an outlying village a boredom, for the reason that economically and socially, life there has very little attraction for such as he; and this in spite of forty thousand miles of railway and the rapidly

increasing rural motor services connecting villages and cities.

India is largely an agricultural country; 90 per cent or 286 millions of the population in British India are agriculturists living in 700,000 villages; the average village containing 375 persons. And herein lies one of India's greatest medical problems. Although disease is rampant in the cities and large towns they have abundant medical aid with doctors clammering for practice; while in rural India 75 per cent of the inhabitants have practically nothing; certainly nothing that can be called even remotely adequate medical aid.

To secure even the vital statistics in rural India is itself an enormous task; and at best the reports are unsatisfactory and unreliable, due to the fact that in these rural areas the vital statistics are based on statements of ignorant village officers whose information concerning disease prevalence and mortality is, in most instances, acquired from statements of the people themselves who make their own diagnoses. Patients suffering from febrile diseases such as pneumonia, relapsing fever, enteric, tuberculosis, septicemia, and other infections, and not infrequently plague, are reported as "simple fever." Similarly patients suffering from dysentery, enteric, cholera or Banti's disease may be reported as "diarrhea." According to the Director of Public Health in Bengal, 25 per cent of the deaths go unrecorded.

High mortality in the cities is a part of the medical problem that can be solved only by publicity, education and sanitary reforms.

As ruralism in India connotes paucity of medical relief on the one hand, so urbanism (if I may coin a convenient term) spells disease prevalence at the maximum. Bengal is the most highly congested province in India with 46 million inhabitants. Col. C. A. Bentley, Director of Public Health in Bengal, recently in a public address in Calcutta disclosed the following rather startling facts. "The

total annual mortality in Bengal from all causes is approximately 1,500,000 or over 31 per 1000 of population. Half this number, or 75,000 deaths, occur among children under fifteen years." According to Col. Bentley one-fourth of this mortality is due to preventable diseases. Cholera and malaria are responsible for 470,000 deaths annually. Enteric has a death rate of 50,000 to 100,000, varying in different years. The mortality from tuberculous is approximately 100,000 annually. Among the startling features of Col. Bentley's report is the fact that 55,000 newly born babies die annually of tetanus, the result mainly of ignorance, uncleanly habits and the unsanitary practice of the untrained dhias or native midwives.

According to the report of the Calcutta Health Officer, we find that for every boy between the ages of 15 to 20 years who dies of tuberculosis, there are six deaths from the same disease among the girls. This officer referring to this unnecessary mortality declares: "I am convinced that it is the retention of the Purdah system in the densely populated gullies of the congested cities that dooms so many young girls to early death from tuberculosis." (In the Purdah system the Zenana in order to secure absolute privacy is usually located in the center of the dwelling where the admission of light and adequate ventilation is a practical impossibility.)

For the city of Calcutta the City Health Officer's report deals almost exclusively with deaths. "Assuming there are four or five cases living for each death registered, there are probably about 10,000 living cases of tuberculosis at any given time in the city of Calcutta, or one in every 132 of the population."

I would say from personal experience that Bombay should be placed in the same category with Calcutta.

Other Medical Institutions

In addition to the regular hospitals and dispensaries three classes of institutions exist. They are the Leper

Asylums, Tuberculosis Sanatoria and the Mental Hospitals. Of the Government Leper Asylums fifty are maintained by the British Government, and eight by Indian States. These institutions are under direct care of the Government Subordinate Medical Service. The Leper Mission, known as the Mission to the Lepers in India, and the East, is supplemented by a substantial branch organized in the U. S. A. and known as the American Mission to the Lepers. This combined organization maintains fifty-two Leper Asylums, thirty-seven of which are supported wholly and fifteen in part by the Leper Mission. In the Leper Mission institutions there are eight residential European doctors, and twenty-three Indian residential doctors; thirteen European doctors and fourteen Indian visiting doctors. The number of lepers reported as treated in the Leper Mission institutions in 1928 was 6986. In addition the Mission maintains thirty-nine homes for the untainted children of lepers, in which there are collectively 815 inmates. Most of these asylums are superintended by clerical missionaries, the professional service being carried out by subordinate Indian doctors.

The reports from the Indian state asylums and from some of the British Government institutions are very incomplete.

The census of 1921 gave the number of lepers in India as 102,513. This is probably below the actual number since many early cases are concealed or undiagnosed. Referring to the number of lepers in India Dr. S. E. Muir, special leprosy research worker in the School of Tropical Medicine in Calcutta says: "We think it would not be an over-estimate to put down the number of lepers in India as somewhere between a half and one million." In some districts, in which a census was made by the Leprosy Relief Association, the incidence of leprosy was four or five times that given in the government census of 1921.

The British Empire Leprosy Relief Association organized under the patronage of H. R. H. the Prince of Wales,

and the Viceroy of India, as chairman, has raised an endowment fund of £150,000, which is being used for the work of research, the training of special doctors and maintenance of institutions for the special treatment of leprosy. A vigorous campaign is in progress with the object of ultimately stamping out the disease.

The Indian Council of this organization in 1926 issued a "Memorandum on the methods of conducting the anti-leprosy campaign in India." This document sought to bring out the following main points, which according to the latest scientific researches should be the base upon which all efforts ultimately to eradicate leprosy must rest, namely:

(1) Pauper lepers form only a small fraction of the leper population, and the disease is common among all classes of the community.

(2) Segregation is *not* the most appropriate method of dealing with lepers for

(a) financially the segregation of all lepers would be impossible;

(b) any attempt to impose forcible segregation would drive patients, particularly those who are suffering with the first stages of the disease, to conceal their misfortune, and as has been the case where such means have been adopted, only the more advanced and obvious lepers would be segregated.

(3) The majority of the advanced cases are the most highly infectious and are less amenable to treatment, while the early stage cases in which the disease has made but little outward manifestation, can be controlled by treatment.

(4) The strongest hope of stamping out the disease lies in providing facilities for the treatment of early cases.

The India Council, therefore, while it did not desire to minimize the usefulness of homes and asylums for the care of lepers, strongly recommended that the efforts of the Pro-

vincial Committees should, for the present at least, be concentrated upon the establishment of dispensaries to serve the following objects:

(a) To induce patients to come forward at an early stage in the hope of recovery instead of hiding their malady till it becomes more advanced, more infectious and less remedicable; and so

(b) To shut off the sources of infection as the number of infectious cases will continually tend to diminish and the opportunities for infecting the next generation will become fewer.

The Provincial Committees have placed the training of special doctors for the proper diagnosis and treatment of the disease, in the forefront of their programmes.

A general appeal for funds was made on the formation of the Indian Council and closed in January, 1926. Realizations produced Rs 20,000,000 ($700,000). This was invested and forms the capital of the Association. The latest report of the Indian Council shows that its work is vigorously being prosecuted, and shows that scientific research is continually illuminating the general problem and that the beginnings of genuine progress towards the eradication of leprosy in India are being made. One of the first particular tasks to which the Council has directed itself is the discovery of the extent of prevalence of the disease in India. The method of inquiry adopted is to establish a treatment centre in a leprous district and to approach the census problems there through the offer of treatment. The survey was experimentally begun in Manbhum district of Bihar and Orissa, then in the Bankura district of Bengal and thereafter in three areas in the Sonthal Parganas in the same part of India and later still in the Chin Hills, in Burma.

"In the first three districts the incidence of leprosy was found to be between four or five times that given by the Government census figures, but it cannot be claimed that

even this survey has revealed the total incidence, as second visits to certain villages generally resulted in the discovery of even more cases. . . In one high school 11 cases of leprosy were found among 300 boys." The Council deduce that there are at least half a million people in India suffering from leprosy. It was discovered in one area of the Sonthal Parganas surveyed that: "Hiranpur has 1,197 lepers per 100,000 of population: out of 163 villages 106 were found affected with leprosy."

Recently special outdoor leper departments have been established in connection with existing dispensaries throughout the country. In these the newer treatment by the hypodermic method is in use with encouraging results. Results, however, are likely to be less satisfactory in outdoor dispensaries where exercise and dieting cannot be properly controlled. Segregation for the entire leper population would, on the other hand, be financially impossible at the present time.

Tuberculosis Sanatoria

The Government maintains six sanatoria, three of them are located in Indian states with several more in contemplation. There are six sanatoria conducted under Mission auspices with others in anticipation. The largest and most comprehensive sanatorium in India is the Union Mission Sanatorium at Arogyavaram in the Madras presidency, which contains 180 beds. This institution is a model one and is conducted as a union organization in which fourteen different missions unite. Five other missions maintain sanatoria in different parts of the country. There are also a few private institutions. The total number is very inadequate judging from the waiting lists and applications for admission. Tuberculosis is rampant in many of the large cities, the result of poverty, overcrowding, the purdah system among females, and the unsanitary surroundings of the city homes. According to Sir Leonard Rogers there are, excluding malaria and tropical fevers, "more deaths from tuberculosis in Calcutta than from any

one of the so-called tropical diseases." The Health Officer in Calcutta estimates 10,000 tuberculosis patients in that city. The large cities have become clearing houses for tuberculosis from which the disease is spreading to the rural areas.

Village people accompanied by their families are attracted to the cities in search of employment in the cotton and jute mills or flee from their villages to the cities during outbreaks of plague and other epidemic diseases. In the cities they live in the already overcrowded chawls; later, on return to their villages, many of them are the victims of tuberculosis, who in turn infect other occupants of their homes. The disease is notably common and undoubtedly on the increase throughout India.

Mental Hospitals

The insane population of British India numbers 88,305 or 3 in every 10,000 of the population as compared with 40 insane persons to every 10,000 in Great Britain. There are 20 insane asylums in British India and Burmah. It would probably be true to say that there is but one mental hospital in all India that makes any pretense of keeping up-to-date as regards organization, staff and equipment. This is the mental hospital for Europeans located at Ranchi. There are six central mental hospitals for Indians under the care of a full time civil surgeon, who is usually an alienist. The remaining 13 are in charge of the district civil surgeons who have other duties engaging their attention.

In the Indian States, with the exception of Mysore, the insane are cared for in the common jails and all are overcrowded. In Bengal with 46 million people there is no mental hospital. Insane Indian patients from this Province are sent to the Mental Hospital for Indians in the adjoining province.

There is woeful indifference and apathy on the part of the Indian public towards psychiatry and cognate interests.

As evidenced by the lack of any institution for the care of and treatment of the mentally defective, the feeble minded, and the epileptic population. The Indian year book for 1929 says: "There is still a lamentable failure everywhere to appreciate the intimate association of crime with mental disorder and the extreme paucity of medical men throughout the whole of India with any real knowledge of mental diseases leaves the decision of questions involving law terms and responsibility in crime in the hands of medical men who are in no sort of sense experts." In other words, the current ideas both as regards the theory and practice of dealing with insanity and crime in India can only be described as "archaic" according to this authority.

Birth and Death Rates for 1926

In 1926 the birth rate in British India was 34.77 per mille and the death rate 26.76. In the same year the infantile death rate was 188 per mille, an increase of 15 over 1925. The comparable death rates for other countries in 1926 were: Canada 102, U. S. A. 73, England and Wales 70, Japan 166.

Of the total mortality in British India 24.6% occurred during the first year of life, the corresponding figure for England and Wales was 10.7%.

In 1925 India's birth rate was nearly twice that of England and Wales, 3 times that of New Zealand. The infant mortality was 2½ times that of England and Wales, 4½ times that of New Zealand.

Government statistics for rural areas are less reliable than those in the cities, for the reason that in the villages vital statistics are gathered by ignorant village officers or the police, persons who are often incapable of making accurate reports. Such statistics for rural areas must therefore be regarded as only fairly approximate, especially as regards epidemic disease.

In many of the large cities and towns the death rates

during the first year of life are not infrequently much higher than those given above, *i. e.,* in Poona for example, it is 590 per thousand, Cawnpore 495, Rangoon 342. While maternal deaths vary between 5.5 per mille in rural areas to 12 per mille in cities.

The following mortality record of prevalent diseases is taken from the government records *for 1925:*

Cholera	15,645	cases
Smallpox	85,886	"
Plague	117,717	"
Dysentery and Diarrhea	208,412	"
Respiratory diseases	326,557	"
Other diseases	147,337	"

It is estimated that during the 20 years following 1896 when plague first appeared in Bombay, twelve million people died of that disease.

During the influenza epidemic which appeared in India in 1918, continued through a part of 1919 and subsequently in endemic form until 1920, it has been estimated that four millions died of the disease. Some authorities placed the total mortality of the entire outbreak as high as seven millions.

This frightful death rate may be attributed to lack of resistance, the result of underfeeding and to overcrowding in the houses at night. The average home provides little or nothing in the way of ventilation. The mortality rate was higher than that of the plague at its worst, death in most instances being due to pneumonia or early heart failure.

The Director of Public Health in Bengal says (and the Public Health Commissioner of Bombay agrees with him): "The callous indifference and ignorance to the laws of hygiene and sanitation, the ingrained conservatism and woeful fatalism of the masses can only be removed by extensive propaganda." Said the India Commissioner of

Public Health at the Far Eastern Congress of Tropical Diseases in 1927: "The information furnished for the great group of infectious diseases of world import, *i. e.*, plague, cholera, smallpox, yellow fever, typhus, malaria and dysentery shows (says the Public Health Report already cited) that if we expect typhus and yellow fever, India is one of the world's reservoirs of infection for the others and the main reservoir of infection for plague and cholera." The significance of these facts must, adds the Commissioner, be obvious to all who think: "Briefly their implication is that India's house, from the public health point of view, is sadly out of order and that this disorder requires to be attended to. It is not for India to say that so far as she is concerned prevention is impossible. If we think of the effects of sunlight on tubercle ridden children, of the effect of feeding on rickets, cholera, dengue, ankylostomiasis and filariasis can be and have been overcome, we need have no fear in regard to India provided the necessary measures are put into operation." The basic enemies of all health activities are excessive poverty and gross ignorance.

Cholera Requires Special Mention

Lt. Col. L. C. Dunn, D.T.M., I.M.S., Director of Public Health of the United Provinces, in an address on the subject of "Cholera" at a recent meeting of the Christian Medical Association of India made the following observations:

"He considered that we were making much progress in the study of the disease, and that complete prevention of the disease would be realized shortly. He considered that the idea that cholera was an endemic disease was entirely wrong. The first cases of the disease in a district are *always* imported, and are not endemic. In 90 per cent of the villages in the U. P. the disease does not exist, therefore there is no real endemicity. If it were true that carriers could carry pathogenic organisms for 40 days, without showing any symptoms of the disease, then the problems were desperate, but the results of very careful inquiry show that persons apparently quite well who are carriers

will never infect anyone else. Thousands of examinations show this to be true. The vibrio may be there, but its pathogenicity is nil. It may be an attenuated strain. A recovered cholera patient passes pathogenic vibrios for seven days, but after that they are entirely innocuous. If there were a quarantine for seven days of all cholera cases, it would be quite safe and the socalled endemicity of cholera would entirely disappear. Cholera is spread principally by religious pilgrimages all over the country. It is brought and spread by contact, flies, water, etc. In one case that was investigated it was found that one infected man spread the disease in forty-four villages within one week, and within two months five thousand people died. Marriage gatherings prove very bad foci for spread of the disease. The bazaar villages are great centers of infection. A pilgrim goes home, taking with him water from the Ganges River, and some food. Even if he himself has not the disease he may spread it through infected food and water. An outbreak in a Thibetan village had been traced to infected water carried a seventeen-day journey. In a village, when a man gets sick, the drinking vessels become at once infected and from these the well gets infected. Clothing becomes infected by mouth secretions and the excretae. In the hills the disease is often spread by the rivers. Cholera corpses are thrown into the rivers and streams, and it is almost impossible to chlorinate the streams. In the rivers where ceremonial bathing is indulged in the contaminated water is a great source of infection. Travelling parties going from the *melas* often infect wells in passing through villages, and railway carriages may be hotbeds of infection, where the travellers are packed so closely together. The Health Department's efforts to control the disease are nearly always treated with suspicion, which makes the work more difficult. The Department uses all sorts of propaganda, such as lantern slides, cinema films and lectures." Col, Dunn advises the use of potassium permanganate as a disinfectant, because the crystals are stable and therefore can be kept for a long time in a village, and

be ready whenever it is needed. If permanganate were placed in every well in a village, seven days later there would be no cholera there.

Child Welfare Movement, A Hopeful Sign

Among the most pressing problems of India's health is that presented by the appalling infant mortality. It is estimated that two million babies die every year while tens of thousands start life with the enormous handicap of child weakness the result of malnutrition imposed by poverty and ignorance. These conditions have stimulated the *Child welfare movement* initiated by the Lady Chelmsford and known as The Maternity and Child Welfare League, aided by the Indian Red Cross Society and the Indian Medical Service for Women. A network of child welfare centers have been established in the more populous areas. Lady Reading recent Vicerene and others, socially prominent, have with successful enthusiasm inaugurated Baby Week which has spread to the large towns all over India and promoted a persistent widespread effort among the European women and well-to-do Indian women. This child welfare movement includes maternity, pre-natal instruction to mothers and the training of Indian midwives. The Baby Week activities include the extensive campaign of demonstration and instruction in maternity activities throughout the country. It is hoped that the movement will continue to enlist increasingly intensive enthusiasm which will be necessary if the enormous field is to be successfully occupied. Already the movement has been productive of good results and if maintained with present enthusiasm will go a long way in solving the problem of the excessive mortality among India's infant and maternal population. It is a bright spot in the surrounding darkness of an otherwise pretty discouraging situation.

Public Health Report

At present there is no health act for the whole of India nor under existing administrative arrangements is such an

act immediately probable, in anticipation of contemplated constitutional reforms.

Medical statistics according to the *1926* Government report for British India and the Indian states there were treated in the Government Civil hospitals and aided medical institutions numbering in all 4189 medical institutions, 44,610,196 patients of which 766,855 were indoor patients. In these institutions 1,871,495 surgical operations were performed.

Medical Education in India

Medical schools existing in India are of two grades, (a) *"Medical Colleges"*—Medical departments of the universities, and (b) *"Medical Schools."*

In the former the Medical course is five years; two years of university premedical study being required, the combined degrees M.B. (Bachelor of Medicine) and B.S. (Bachelor of Science) are conferred. Twelve such colleges exist in British India and one in the Native State of Hyderabad. These colleges also admit women and there are in all 128 women in attendance. In addition there is also one Medical college of the M. B. B. S. grade exclusively for women, the Lady Hardinege Medical College in Delhi which has 113 students in training.

Medical Schools. Twenty-five such schools exist in British India and one in the Mysore state. Three of these are under mission auspices, two for women with 265 students and one for men with 60 students.

University Matriculation is required for admission in these schools. The course is four years, to be raised to five years in 1932.

These schools confer a license L.C.P.S. in Bombay (Licentiate College Physician and Surgeon) and L.M.P. Madras (Licensed Medical Practitioner).

In the colleges and schools there is a combined student enrollment of 10,181 medical students of whom 615 are women. The Zenana or purdah system is gradually being relaxed or is being modified under modern propaganda but there are still multitudes of women, especially among the Mohammedans in central and northern parts of India, who will not allow themselves to be treated by male doctors except for minor affections.

The need for women physicians both in the cities and villages is still very urgent in view of the prevailing social conditions, and the high mortality among infants and young motherhood.

The medical schools almost without exception are overflowing with students.

As compared with western countries some of the medical schools are insufficiently staffed and although there is an abundance of clinical material for teaching purposes it is not always adequately used.

The Calcutta School of Tropical Medicine is unique as being the only school of this kind in India. This school has an abundance of teaching material and is well equipped in respect of teaching staff and equipment. The course is for six months with the certificate D.T.M. (Doctor of Tropical Medicine).

Conclusions

1. The Government of India maintains an efficient medical service in India with 4189 medical institutions in British territory and 736 in the Indian States.

2. In the cities and large towns the number of medical practitioners is proportionally sufficient in numbers as compared with western countries but disease is more prevalent and mortality rates excessive, the result mainly of overcrowding and unhygienic surroundings.

3. The preponderance of medical practitioners in the large cities to the neglect of the rural areas, where 90 per

cent of the inhabitants reside, is due to poverty in the village districts and the consequent low social order. The number of physicians in the village areas is woefully inadequate.

4. Tuberculosis is prevalent throughout India and rampant in many of the large cities. Sanatoria for the care of tuberculosis patients are comparatively few in number and very inadequate in consideration of the increasing number of T. B. cases.

5. Leprosy is prevalent throughout the whole of India, in some areas the disease prevails excessively. A campaign for stamping out the disease is in active operation.

6. Mental disorders have a relatively low incidence and nervous diseases are of comparatively infrequent occurrence among rural dwellers though common enough in the cities.

7. A causative factor in much of the disease prevalence obtaining in India has its basis in religious practice and prejudice against hygienic and sanitary reforms.

8. Epidemic disease is spread by religious pilgrimages which are a positive handicap in the carrying out of efficient sanitary measures in the prevention of contagious affections.

9. Infant mortality and the maternal death rate in India are unnecessarily high. The purdah system forms the basis for a large percentage of the physical ills among women and children. Women doctors are in great demand. A large proportion of the medical needs among the womanhood of India can only be met by women physicians.

10. Much of the epidemic disease in India is preventable, but poverty and ignorance are the main factors operating to prevent the greatly needed hygienic and sanitary reforms.

11. There are widespread movements in operation for the elimination of preventable disease, but characteristically slow in their development.

12. Medical Missions in India are making a large contribution towards the relief of sickness throughout the country. They possess many efficient hospitals, 176 in all, and are sharing with Government in the care of the sick womanhood, in maternity service and the training of Indian nurses.

They possess the largest and most efficient Tuberculosis Sanatorium in India and their surgical service has been notable in its contribution towards the relief of surgical ailments.

They have extended their institutions in the neglected rural areas. They are participating in medical education and possess three medical schools, two of these for women. Their services are greatly appreciated by the populace and highly acceptable to the British Government of India, both in British territory and the Indian States.

13. The Government of India conducts a popular and efficient system of medical education but a modified plan for medical relief whereby practitioners may be persuaded to reside more largely in the rural areas, is urgently needed.

Dr. R. H. H. Goheen, of Vengurla, has recently made an extended tour throughout India as a member of a survey committee on medical mission institutions, appointed by the National Christian Council of India. I wish to express my indebtedness to Dr. Goheen and his committee for much of the material I have used in the preparation of this paper.

Discussion

Edward H. Hume: It is a great pleasure to be with you this evening when Sir William has given this very important paper on present day medicine in India. My own experience in India began in the Bombay Presidency. I should like to mention the peculiar circumstance that there should be four men coming to this single section to-night who are able to speak a common tongue. Sir William, Dr. Goheen, Dr. Vail and myself have all worked in the same section of India and speak one language.